designideas

make some changes in the hardware and software. The changes necessary to the hardware are obvious, and you may need to change the software source code of the application to correct the *for (...)* loop statement according to the timing diagram of the selected part.EDN

Perform bitwise operation in Excel spreadsheets

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Microsoft's (www.microsoft.com) Excel helps engineers with calculus and graphics to solve problems. But engineers often have to perform bitwise operations, too. **Figure 1** shows the bitwise operations' tables. The bitwise functions work for decimal values. If you need to use hexadecimal or binary values, you must use the Dec2Bin and Dec2Hex functions to convert all the decimal values for the desired format.

To install the add-in bitwise functions, you can download the ins.xla file from the Web version of this Design Idea at www.edn.com/081030di2. In Excel, go to Tools, then Add-Ins, and then Browser. Find the downloaded add-in xla file and click OK. Now, Excel can run the bitwise functions.

You can also download some examples from the *EDN* Web site at www.edn.com/081030di2 (**Reference 1**).EDN

REFERENCE
Kagan, Aubrey, *Excel by Example: A Microsoft Excel Cookbook for Electronics Engineers*, Newnes Elsevier, 2004, ISBN 0-7506-7756-2.

AND		RESULT
0	0	0
1	0	0
0	1	0
1	1	1

OR		RESULT
0	0	0
1	0	1
0	1	1
1	1	1

XOR		RESULT
0	0	0
1	0	1
0	1	1
1	1	0

NOT	RESULT
0	255
1	254

SHIFT RIGHT		RESULT
BINARY	SHIFTED	BINARY
11010010	6	00000011

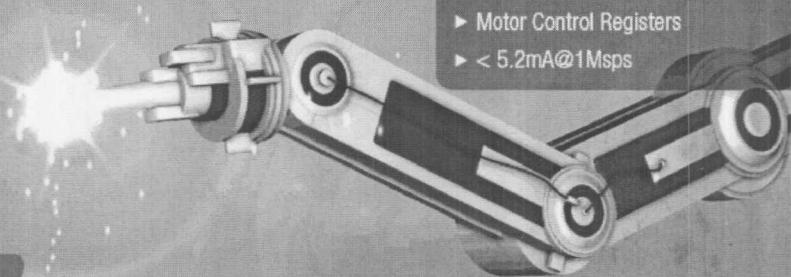| SHIFT LEFT		RESULT
BINARY	SHIFTED	BINARY
01100100	2	10010000

Figure 1 With the help of some new add-in functions, you can perform these bitwise operations in Excel.